REMARKS

Claims 1-7, 10-14, 22-26, 28, 31-35, 39-42, and 45-47 are pending in this application. Claims 1-7, 10-14, 22-26, and 45-47 stand withdrawn from consideration. By this Amendment, claim 22 is amended to change its dependency. In addition, claims 28 and 39 are amended to further clarify the claimed subcarrier and frequency utilization ratio. Support for the amendments can be found, for example, in paragraph [0215] of the specification. No new matter is added. Reconsideration and prompt allowance of the pending claims is respectfully requested in light of the following remarks.

I. The Claims Define Patentable Subject Matter

The Office Action rejects claims 28, 31-33, 35 and 39-42 under 35 U.S.C. §103(a) over U.S. Patent No. 6,107,910 to Nysen in view of U.S. Patent No. 6,362,737 to Rodgers et al. ("Rodgers") and further in view of U.S. Patent No. 5,940,006 to MacLellan et al. ("MacLellan") in view of U.S. Patent No. 6,963,184 to Carlson and further in view of U.S. Patent Application Publication No. 2001/0040508 to Janning et al. ("Janning"); and rejects claim 34 under 35 U.S.C. §103(a) over Nysen, in view of Rodgers, and further in view of MacLellan in view of Janning, and further in view of U.S. Patent Application Publication No. 2001/0020897 to Takatori et al. ("Takatori").

The applied references either alone or in combination fail to disclose and would not have rendered obvious each and every feature recited in claim 28. For example, claim 28 recites, "each frequency channel is used as a hopping frequency of a subcarrier signal in which a frequency hopping is implemented and which is used to modulate said main carrier." As can be seen in the supporting disclosures of paragraph [0208] and Fig. 1 of Applicants' specification, subcarrier frequency fs1-fs3 are quasi-randomly selected by hopping within an entire frequency band, which is available as the subcarrier for each of the endpoint devices 3a, 3b and 3c.

The Office Action asserts that MacLellan discloses a frequency-utilization-ratio setting portion (FURSP) operable on the basis of an operating state of a battery cell and lowering a center frequency of distribution of the frequency utilization ratio of the subcarrier signal. However, MacLellan discloses tags 102 that respond to a downlink signal 103 using different frequencies (see MacLellan, col. 11, lines 6-30). MacLellan further discloses that a cw signal 104 is at RF frequency f1 (see MacLellan, Fig. 8 and col. 11, lines 6-30). The uplink frequency of MacLellan is disclosed as being at frequency (f1+f2), (f1+f3) or (f1+f4), which are referred to as subcarrier frequencies and represent offsets from the RF cw signal 104 at fl (see MacLellan, Fig. 8 and col. 11, lines 6-30). The tag 102 of MacLellan selects one of the available subcarrier frequencies at random, and transmits the uplink signal 105 (see MacLellan, col. 11, lines 6-30). In other words, a plurality of responders 102-1, 102-2, etc. of MacLellan transmit uplink signals 105 of any frequency (f1+f2), (f1+f3) or (f1+f4) obtained by adding the subcarrier frequencies f2, f3 or f4 to the main carrier frequency f1.

Thus, because MacLellan fails to disclose that the subcarrier for modulating the main carrier is subjected to frequency hopping, MacLellan fails to disclose the claimed frequency-utilization-ratio setting portion. None of the other applied references remedy the deficiency of MacLellan.

In addition, claim 28 recites "frequency utilization ratio which is a ratio of time period during which each frequency channel is used as a hopping frequency." Claim 28 further recites "a first distribution pattern in which the individual frequency utilization ratio is relatively high in the relatively low frequency channels and a second distribution pattern in which the individual frequency utilization ratio is relatively high in the relatively high frequency channels, the first distribution pattern so that a center frequency of the distribution of the frequency utilization ratio of the subcarrier signal is lowered, when a supply voltage of

said battery cell detected by the power-source-information detecting portion is lower than a predetermined threshold value."

As can be seen in the supporting disclosure illustrated in Fig. 28 of Applicants' specification, an exemplary frequency distribution of the subcarrier signals in relation to time where the first and second individual-frequency-utilization-ratio distribution patterns Pt1 and Pt2 are combined together. Fig. 28 includes a graph in which time frames are disclosed along the abscissa and frequency is shown along the ordinate. Each of the illustrated time frames is long enough to complete one reply. One division of the graduation along the ordinate corresponds to one frequency channel. The endpoint device 3a-3c, for which the first pattern Pt1 is set, is operated to transmit the reflected signals having relatively low frequencies, while the endpoint device 3a-3c, for which the second pattern Pt2 is set, is operated to transmit the reflected signals having relatively high frequencies.

In contrast, because MacLellan fails to disclose that the subcarrier for modulating the main carrier is subjected to frequency hopping, MacLellan also fails to disclose setting the frequency-utilization-ratio of the subcarrier for each of the channels so that the frequency-utilization-ratio of the hopping frequency is high in the low frequency band or the high frequency band. None of the other applied references remedy this deficiency.

Furthermore, claim 28 recites "said frequency-utilization-ratio setting portion is operable...to set...the first distribution pattern so that a center frequency of the distribution of the frequency utilization ratio of the subcarrier signal is lowered, when a supply voltage of said battery cell detected by the power-source-information detecting portion is lower than a predetermined threshold value." In contrast, Rodgers discloses that a sequence of frequencies is selected so as to avoid transmitting more than a predetermined average power in any particular band of frequencies (see Rodgers, col. 11, line 66 to col. 12, line 11). Rodgers further discloses transmission on a frequency in a first band such as F308 in band F304 to

F312 may be followed by transmission of any frequency in a second band such as F324 in band F320 to F328 to limit average power transmitted in the first band (see Rodgers, col. 11, line 66 to col. 12, line 11).

Thus, Rodgers merely discloses transmitting the power in two different frequencies including the frequency in the first frequency band and the optional frequency in the second frequency band to prevent the power transmission in the predetermined frequency band that for avoiding the power transmission in the predetermined frequency band from being more than the average power transmission. Moreover, the power of Rodgers is transmitted in the two frequency bands, irrespective of lowered voltage of the battery device, and Rodgers fails to disclose any element for detecting lowered voltage of the battery device. In contrast, the claimed frequency-utilization-ratio setting portion sets the frequency distribution based on a determined battery cell operating state.

Claim 39 recites "an individual-frequency-utilization-ratio setting portion operable to set a distribution of an individual frequency utilization ratio which is a ratio of a time period during which each frequency channel is used as a hopping frequency of a subcarrier signal in which a frequency hopping is implemented and which is used to modulate said main carrier over a predetermined range of frequency of the subcarrier signal, which consists of a plurality of mutually adjacent frequency channels" and "the individual-frequency-utilization-ratio setting portion being operable to set, of a first distribution pattern in which the individual frequency utilization ratio is relatively high in the relatively low frequency channels and a second distribution pattern Pt in which the individual frequency utilization ratio is relatively high in the relatively high frequency channels, the first distribution pattern, on the basis of said switching information generated by said switching-information generating portion and one of the at least two discrete supply voltages of said battery cell detected by said power-source-information detecting portion so that a center frequency of the distribution of the

frequency utilization ratio of the subcarrier signal is lowered, when a supply voltage of said battery cell detected by the power-source-information detecting portion is lower than a predetermined threshold value." Therefore, claim 39 is patentable at least for reasons similar to those discussed above for claim 28 as well as for the additional features claim 39 recites.

Dependent claims 31-35 and 40-42 depend from independent claims 28 and 39, respectively. Therefore, claims 31-35 and 40-42 are patentable at least for their dependence from claims 28 and 39 as well as for the additional features those claims recite.

Withdrawal of the rejection is requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Brian K. Kauffman
Registration No. 63,199

JAO:BKK/j;s

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OLIFF & BERRIDGE, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

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